California Department of Pesticide Regulation
Environmental Hazards Assessment Program
830 K Street, Room 200
Sacramento, CA 95814-3510

STANDARD OPERATING PROCEDURE
Selection of a Suitable Well Site

KEY WORDS

Well Site Selection, Well Site Criteria, AB2021, PMZ

APPROVALS

APPROVED BY: _____ DATE: 12/14/98
Management

APPROVED BY: _____ DATE: 12/13/98
EHAP Senior Scientist

REVIEWED BY: _____ DATE: 12/14/98
EHAP Quality Assurance Officer

PREPARED BY: _____ DATE: 12/7/98

Environmental Hazards Assessment Program (EHAP) organization and personnel such as management, senior scientist, quality assurance officer, project leader, etc. are defined and discussed in SOP AMN002.

STANDARD OPERATING PROCEDURE
Selection of a Suitable Well Site

1.0 INTRODUCTION

1.1 Purpose:

To provide guidelines for the selection of well sites for ground water studies with the intention to provide samples that are representative of the supplying aquifer and which minimize the effect of well construction. The selected well site(s) should meet as many of the listed criteria as possible. These studies are designated to determine if pesticide residues detected in ground water may be the result of legal agricultural use.

1.2 Scope

This document provides a list of criteria to be used for selecting well sampling sites.

1.3 Definitions

A **Pesticide Management Zone** (PMZ) is a geographical area of approximately one square mile (usually corresponding to a section of land as defined by base meridian, township, range, and section) which has been determined to be sensitive to ground water pollution as a result of legal agricultural pesticide use.

2.0 Materials

2.1 Well driller's log
2.2 Maps

3.0 Selection Criteria

3.1 The use of a well driller's log provides valuable information about the construction and dimensions of the well during its construction. This information includes depth to water-bearing strata, if any of the strata are sealed off, sanitary sealed dimensions, placement of screens in the casing, depth of the bore hole, depth to standing water, descriptions of construction materials, and the driller's name and

address. Well driller reports are treated as confidential information and can only be obtained by representatives of official state agencies.

3.2 Small domestic wells are preferable to large irrigation wells. Generally, domestic wells are shallower, are sealed more carefully, and are less likely to contain contaminants often introduced by the lubrication systems found on turbine pumps.

3.3 Steel well casings are preferable over casings constructed with plastic or PVC (plastic can interfere with some pesticide analyses). However, current well construction is mainly from plastic materials.

3.4 A sample port located between the pump and the storage tank is preferable to one located after the storage tank. Many pesticides can be influenced by the airspace and the temperatures that exist within the storage tank. Consequently, residues of these pesticides in tank water may have dissipated or degraded and a tank water sample would not provide an accurate measure of the concentration of the pesticide found in the water from the aquifer.

3.5 Wells that operate regularly are preferred to those that do not in order to allow for a greater possibility that fresh water is being withdrawn from the aquifer. In addition, regularly operated wells are generally in better condition and less likely to introduce contaminants into a well sample.

3.6 The above-ground equipment and concrete pad should be in good condition. Wells with minor cracks in the pad which do not affect the integrity of the well are acceptable. Do not accept wells that have missing well caps or large openings in the well head, water running into the well head, or storage of pesticides or other chemicals near the well head.

3.7 Select wells that are located as close as possible to projected application sites for the targeted chemical.

4.0 STUDY SPECIFIC DECISIONS

4.1 Study Site Criteria

4.1.1 Four-section survey well sites should encompass the original well in each of the four cardinal directions. Wells may be selected within the boundaries of the section of the detection site and any or all of the three nearest adjacent sections. Wells are selected and sampled as part of a second site requirement for legal use determinations for pesticides entered into the AB2021 pesticide response process.

4.1.2 Adjacent section survey sites (sections) will be chosen from sections that are adjacent to sections of land that have been identified as Pesticide Management Zones (PMZs). The objective is to determine whether or not well water in sections adjacent to PMZs also contain pesticide residues. Locate wells as close as possible to the projected sites of pesticide applications for each candidate section.

4.1.3 Ground water protection list monitoring sites will be determined by pesticide usage and the California vulnerability modeling approach. Sections with high use will be identified and each section will be assessed for its vulnerability to the movement of pesticides to ground water. An attempt will be made to sample one well in each selected section that is located as close as possible to the projected sites of pesticide application.